A Remote Experimental System for Traditional Japanese Craft Designs Using Analysis of Relation Between Kansei Words and Room Space

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ABSTRACT

In this paper, a remote experimental system for traditional Japanese craft design for students of architecture in universities and professional design schools is proposed. Many students at different locations can share those craft elements distributed over high-speed networks to design the insides of buildings and houses so that the human being can be satisfied emotionally. In order to demonstrate the relation between human feeling and traditional Japanese crafts, an on-line analysis method is provided and carried out by web-based questionnaire. Eventually, those analytical results could be reflected to our remote experimental system to totally design the most desired houses with the best intentions to human feelings.

Keywords: Japanese craft design; high-speed networks; building design

INTRODUCTION

Traditional Japanese crafting is very important for students of architecture in universities and professional design schools in designing buildings, houses and indoor rooms. The students can use those elements to totally coordinate the inside of the objective buildings and houses so human beings can be emotionally satisfied. There are several database systems for traditional Japanese crafting available on the World Wide Web (WWW) (The Society of Industrial Promotion for Traditional Japanese Crafting) including indoor basic components such as “Shoji” and “Fusuma” “Ramma” as typical Japanese doors.

However, it is difficult to represent the impression and functions for most of the crafting objects by existing hypermedia composed of text, images and movies. Most of the crafting objects are very important elements for living space and the fittings should be fit in the Japanese rooms. So, it
is necessary to represent the impression of the room by opening/closing the fitting from different places. In order to overcome such problems, realization of virtual reality presentation systems, which include presentation space and crafting objects by 3D Computer Graphics (CG) for traditional Japanese crafting, is required.

We have proposed a remote experimental system for the students of architecture in universities and design of Digital Traditional Japanese Crafting System (DTJCS) (Sugita, Miyakawa, Kohsaka & Shibata, 2000), which provides a presentation space for traditional Japanese crafting. Using this system, the students at different locations can build the most desired indoor space of the buildings and houses by interactively accessing and collecting from the Japanese traditional crafting object databases, which consist of three dimensional computer graphic objects and are distributed over high-speed networks such as the Japan Gigabit Network.

We also introduced a Kansei Retrieval Method (KRM) (Miyakawa et al., 2001) to provide the presentation space reflected by people’s feelings. In our system, on-line analysis method to made clear the effect of room fittings to people’s feelings is provided and carried out by web-based questionnaire. Based on this on-line analysis, we want to make a presentation system to provide to people the desired room fittings.

The organization of this paper is as follows. In the next section, we will introduce the related works then describe the DTJCS and KRM. Subsequently, the questionnaire survey is treated and the results of the web-based questionnaire survey are presented. Later, we show the prototype system and offer some conclusions.

RELATED WORKS

A Kansei retrieval method for a textile design image database system was proposed by Fukuda et al. (1995, 1996). The proposed image retrieval method uses the relation between Kansei word and the feature of the image, which is characterized as the color or the pattern shape. This method can be applied to retrieve the fittings, but it cannot provide the desired room design, because they did not consider how the combination of multiple objects influence people’s feelings.

The shape future space constructing method for retrieving image database was proposed by Harada et al. (1999). This method uses for retrieving the relevance between Kansei word and the shape features. But, the authors did not consider the change of impression by combining the retrieval results.

A retrieval method on the image database using sensitive word reflecting user’s subjectivity was proposed by Kurita et al. (1992). This method did not consider the retrieval of multiple objects.

DTJCS AND KRM

DTJCS

In order to learn the existing products, the apprentice craftsmen and the successors should see the products during the design process. And the customers and craftsmen should see the products during the design process too. Products such as fittings are especially important elements of the designed products. For this reason, the designed products should be very close to the desired ones. But using the conventional design methods, it is very difficult to achieve this goal. On the other hand, by using computers, the presentation of
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